

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Upon entry of this Amendment, claims 1-15 are pending in the application. In response to the Office Action (Paper No. 5), Applicant respectfully submits that the pending claims define patentable subject matter.

I. Preliminary Matters

The Examiner did not acknowledge receipt of the priority documents and the claim for foreign priority under 35 U.S.C. § 119. Applicant requests the Examiner provide acknowledgment of receipt of the priority documents and the claim for foreign priority under 35 U.S.C. § 119 in the next action.

The Examiner did not indicate whether the drawings are accepted. Applicant requests the Examiner provide an indication regarding acceptance of the drawing in the next action.

III. The Present Invention

The present invention is directed to a slave device which is connected to a host device and shares a storage device with the host device, wherein the host device is a computer device such as a personal computer, and the slave devices is a peripheral device such as a portable data terminal, zip drive, MP3 player or digital camera. According to the present invention, a storage device within the slave device is regarded as the storage device of the host device, so that an application program can be easily made using a standardized application programming interface,

and the storage device of the slave device can be shared by the host device using a universal application.

As shown in Figure 2, a slave device 22 includes a storage device 222 and a media driver 224. The media driver 224 of the slave device 22 is connected to a file system 204 of a host device 20 by a predetermined coupling device. The media driver 224 performs connection to the file system 204 of the host device 20 according to a predetermined protocol. Since the storage device 222 of the slave device 22 is connected to the file system 204 of the host device 20 via the media driver 224, at least part of the storage device 222 of the slave device 22 operates as a storage device of the host device 20 when a universal application program is used. The media driver 224 of the slave device 22 has a logical protocol architecture for performing connection according to the predetermined protocol. The protocol architecture included in the media driver 224 of the slave device 22 may vary with the ability of the slave device 22 such that a procedure of connection to the host device 20 varies with the protocol architecture within the media driver 224 of the slave device 22. Accordingly, the file system 204 of the host device 20 preferably includes a top layer identification unit (not shown) for identifying the top layer of the slave device 22 when initialization for connection with the slave device is performed.

As shown in Figure 3, a media driver 224a of the slave device 22 may include only a control and error correction layer 36 for controlling the storage device 222 and detecting and correcting errors. A protocol architecture included in a file system 204a of the host device 20 connected with the slave device 22 is composed of a control and error correction layer 30 for detecting and correcting errors, a logical-to-physical (L-P) conversion layer 32 for converting

logical location information used by the file system 204 into physical location information, and a file system drive layer 34 for abstracting data stored in the storage device 222 to allow the application program 202 to access the data as a file using the logical location information. The slave device 22 is logically connected to the host device 20 according to a predetermined protocol between the control and error correction layer 36 of the slave device 22 and the control and error correction layer 30 of the host device 20.

As shown in Figure 4, a media driver 224b of the slave device 22 may include a L-P conversion layer 46 for converting logical location information used by the file system 204 into physical location information and a control and error correction layer 48 for controlling the storage device 222 and detecting and correcting errors. A protocol architecture included in a file system 204b of the host device 20 includes a L-P conversion layer 42 and a file system drive layer 44, wherein the slave device 22 is logically connected to the host device 20 according to a predetermined protocol between the L-P conversion layer 46 of the slave device 22 and the L-P conversion layer 42 of the host device 20.

As shown in Figure 5, a media driver 224c of the slave device 22 may include a file system drive layer 56 for abstracting data stored in the storage device 222 to allow the application program 202 to access the data as a file using the logical location information, a L-P conversion layer 57 for converting logical location information used by the file system 204 into physical location information, and a control and error correction layer 58 for controlling the storage device 222 and detecting and correcting errors. A protocol architecture included in a file system 204c of the host device 20 includes only a file system drive layer 54, wherein the slave

device 22 is logically connected to the host device 20 according to a predetermined protocol between the file system drive layer 56 of the slave device 22 and the file system drive layer 54 of the host device 20.

IV. Prior Art Rejections

A. Disclosure of Admitted Prior Art

Admitted Prior Art Figure 1A discloses a detachable storage device, such as a detachable or external storage device, connected via a coupling device to a host device which includes a file system. Application programs within the host device can use the storage device in the same manner of using a storage device within the host device through the file system of the host device.

Admitted Prior Art Figure 1B discloses a host device is connected to a slave device including a storage device. The host device uses an application program to perform connection to the slave device.

B. Disclosure of Domenikos et al.

Domenikos et al. is directed to a system and process that allow a computer to connect to a server of an Internet site for executing an application program that is stored on a disk linked to the server. As shown in Figures 1 and 2, FIG. 1 depicts a system 10 which includes a client element 12, such as a stand alone or networked computer, which accesses, deploys, and executes application program stored at drive of an Internet site. The Internet site includes a server

element 14 linked to memory devices 14a and 14b such as external disk drive systems.

Typically the server 14 is a data processing system that runs one or more server processes for maintaining an Internet site that includes one or more files for network access. Each disk drive system 14a and 14b can maintain a set of computer files, including files of executable application program code, which the server 14 can access and control.

Domenikos discloses providing a data transport interface for connecting to the server, and transmitting from the server a server address signal representative of a network address of the server and a path name signal representative of a file system that includes an application program. A mount request is generated as a function of the path name signal and transmitted to the server to direct the server to provide an array of server file pointers that point to a file descriptor representative of the file system that includes the application program. An array of remote file pointers is generated, as a function of the server address signal and the array of server file pointers, and provided to a program loader that transports from the disk at the server site to a local program memory element, a file block associated with the selected remote file pointer.

C. Analysis

Claims 1, 8, 9, 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Admitted Prior Art in view of Domenikos et al. (U.S. Patent No. 5,838,910; hereafter "Domenikos"). Claims 2, 3 and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Admitted Prior Art in view of Domenikos and Jigour et al. (U.S. Patent No. 5,81,426; hereafter "Jigour"). Claims 4-7, 10, 14 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable

over Admitted Prior Art in view of Domenikos, Jigour and Intel: Understanding the Flash Translation (FTL) Specification.

With regards to independent claim 1, the Examiner maintains that the Admitted Prior Art discloses all of the features of the claimed slave device except for a media driver, which the Examiner asserts is disclosed by Domenikos. With regards to independent claim 8, the Examiner maintains that the Admitted Prior Art discloses all of the features of the claimed host device except for performing connection to a top layer of the slave device according to a predetermined protocol, which the Examiner asserts is disclosed by Domenikos. In particular, the Examiner maintains that Domenikos teaches the features of claims 1 and 8 which are missing from the Admitted Prior Art via “the device driver 26”, “the file hierarchy (col 14, ln 39-46)”, “disk partition (col 4, ln 4-45)”, “a file directory (col 4, ln 24-45)”, and “transport protocol layer (col 9, ln 48-60)”.

Applicant respectfully submits that the claimed invention would not have been rendered obvious in view of the combination of the Admitted Prior Art and Domenikos. Firstly, Applicant submits one of ordinary skill in the art would not have been motivated to modify the slave and host devices of the Admitted Prior Art based on the teachings of Domenikos to produce the claimed invention. Similar to the present invention, the Admitted Prior Art is directed to a slave device which is connected to a host device and shares a storage device with the host device, wherein the host device is a computer device such as a personal computer, and the slave devices is a peripheral device such as a portable data terminal, zip drive, MP3 player or digital camera. On the other hand, Domenikos is directed to a system and process that allow a computer to connect to a server of an Internet site for executing an application program that is stored on a disk linked to

the server. Accordingly, Applicant submits that one of ordinary skill in the art would not have been motivated to modify the Admitted Prior Art based on the teachings of Domenikos since Domenikos is not related to the communications between a host device and a portable slave device.

Further, with regards to claim 1, Applicant respectfully submits that it is quite clear Domenkis does not teach or suggest a slave device comprising “a media driver for performing connection to the file system of the host device via the predetermined coupling device according to a predetermined protocol”, as claimed. That is, the device driver 26 of Domenikos is part of the client computer 12 which is a host device rather than a slave device. Further, Applicant respectfully submits that it is quite clear that “the file hierarchy”, “disk partition”, “a file directory”, and/or “transport protocol layer” of Domenikos which the Examiner cites in support of the rejection are not related to the claimed media driver but rather are directed to an administration program of the Internet server 40 for storing a file system of computer files on the memory devices 14a and 14b according to a select file system protocol.

Similarly, with regards to claim 8, Applicant respectfully submits that it is quite clear that Domenikos does not teach or suggest the host device (i.e., the client computer 12) comprising a file system for performing connection to a top layer of the slave device according to a predetermined protocol so that at least a portion of the storage device of the slave device operates as a storage device of the host device. That is, the device driver 26 of Domenikos is not a file system, and “the file hierarchy”, “disk partition”, “a file directory”, and/or “transport protocol layer” of Domenikos are related to an administration program of the Internet server 40 which is a slave device rather than a host device.

With regards to independent method claim 11, the Examiner simply refers to the rejection claims 1 and 8 in support the rejection of claim 11. Similar to the reasons discussed above with regards to claims 1 and 8, Applicant respectfully submits that it is quite clear that Domenikos does not teach or suggest that claimed method steps of “(b) performing connection between the host device and the slave device according to a predetermined protocol between a top layer of the slave device and a file system of the host device so that at least part of a storage device of the slave device operates as a storage device of the host device; and (c) accessing the storage device of the slave device by the host device via the file system of the host device, the top layer of the slave device and a bottom layer of the slave system.”

By this Amendment, Applicant has amended claims 1, 8 and 11 to improve clarity by reciting that the slave device is a portable slave device (e.g., a portable data terminal, zip drive, MP3 player or digital camera as opposed to a fixed server systems such as Domenikos).

In view of the above, Applicant submits that independent claims 1, 8 and 11, as well as dependent claims 2-7, 8-10 and 12-15, should be allowable because (1) the Admitted Prior Art and Domenikos do not teach or suggest all of the features of the claims, and (2) one of ordinary skill in the art would not have been motivated to modify the Admitted Prior Art based on the teachings of Domenikos to produce the claimed invention.

V. Conclusion

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Patent Application No. 09/597,702

best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) A portable slave device which is connected through a predetermined coupling device to a host device comprising a file system and an application program, the slave device comprising:

a media driver for performing connection to the file system of the host device via the predetermined coupling device according to a predetermined protocol; and

a storage device which is connected to the file system of the host device via the media driver, wherein at least a portion of the storage device operates as a storage device of the host device when the universal application program is used by the host device.

8. (Amended) A host device connected to a portable slave device comprising a storage device through a predetermined coupling device, the host device comprising a file system for performing connection to a top layer of the slave device according to a predetermined protocol so that at least a portion of the storage device of the slave device operates as a storage device of the host device.

11. (Amended) A data sharing method between a host device and a portable slave device, comprising the steps of:

(a) physically connecting the host device to the slave device through predetermined coupling device;

(b) performing connection between the host device and the slave device according to a predetermined protocol between a top layer of the slave device and a file system of the host device so that at least part of a storage device of the slave device operates as a storage device of the host device; and

(c) accessing the storage device of the slave device by the host device via the file system of the host device, the top layer of the slave device and a bottom layer of the slave system.